Arsenii Ashukha

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EDUCATION

- PhD in Computer Science, **Centre of Deep Learning and Bayesian Methods NRU HSE**, 2017 - 2021
  Topic: Applications and understanding of variational inference in deep learning, Advisor: Dmitry Vetrov
- MSc in Computer Science, **Moscow Institute of Physics and Technology**, 2017 (with distinction*)*
  Thesis: *Sparsification of DNNs probabilistic framework*, Advisors: Dmitry Vetrov and Alexey Dral
- BSc in Computer Science, **Bauman Moscow State Technical University**, 2015
  Thesis: Bigram anchor words topic modeling, Advisor: Natalia Loukachevitch

PROFESSIONAL EXPERIENCE

- Research scientist (2018 - Now) / Deputy of Lab leader (since Jan 2021) at **Samsung AI Center Moscow**:
  Focused on ensembles of DNNs, and uncertainty estimation.
- Research scientist at **Yandex Research** & **University of Amsterdam** (*2017 - 2018*):
  Focused on a group-level sparsification and uncertainty estimation.
- Research Intern at **Centre of Deep Learning and Bayesian Methods NRU HSE** (2016 - 2017):
  Focused on a sparsification of DNNs and incremental learning.

My responsibility included: selecting research directions, scheduling and executing research agenda, developing machine learning models and algorithms, writing papers.

Before the deep dive into research, I worked as a machine learning engineer at Rambler and Yandex (Russian tech giants), where I worked on a variety of industrial problems that required creating machine learning models and processing a massive amount of data. Such problems include recommendation systems, advertising systems, and music processing.

REPRESENTATIVE PAPERS

- Arsenii Ashukha*, Alexander Lyzhov*, Dmitry Molchanov*, Dmitry Vetrov
  Pitfalls of In-Domain Uncertainty Estimation and Ensembling in Deep Learning, ICLR (2020)
  blog post / poster video (5mins) / code / arXiv / bibtex
- Dmitry Molchanov*, Arsenii Ashukha*, Dmitry Vetrov
  Variational Dropout Sparsifies Deep Neural Networks, ICML (2017)
  talk / arXiv / bibtex / code theano, tf by GoogleAI, colab pytorch

See the full list at scholar.google.com/citations?user=IU-kuP8AAAAJ, * is for an equal contribution.

MISCELLANEOUS

- Reviewing:
  - Conferences:
    - International Conference on Machine Learning, ICML (2019, 2020 top-33% highest-scored reviewers)

- Neural Information Processing Systems, NeurIPS 2019 (top-50% highest-scored reviewers)
- International Conference on Learning Representations, ICLR (2020, 2021)

  - Workshops:
    - ICML Workshop on Invertible Neural Networks (2019, invertibleworkshop.github.io)
    - Bayesian Deep Learning Workshop (since 2017, bayesiandeeplearning.org)

- Thesis (co-)supervision:
  - Alexander Lyzhov (moved to Samsung AI Center)
    - Deep Neural Network Ensembles: Analysis and Approaches to Diversification (MSc, 2020)
  - Andrei Atanov (PhD candidate at EPFL)
    - Effective Learning of Deep Neural Networks Ensembles (BSc, 2018)
    - Learning Deep Models with Small Data (MSc, 2020)
  - Evgenii Nikishin (PhD candidate at Cornell)
    - Stability Improvement and Knowledge Transfer in Deep Reinforcement Learning (MSc, 2019)

- Teaching:
  - Supervisor of scientific seminars on machine learning at HSE and Yandex (since 2017)
  - TA at **Deep|Bayes** Summer School on Bayesian Deep Learning (since 2017), http://deepbayes.ru
  - Machine Learning at MIPT: TA (2016), Lecturer and manager (2017, 2018)

- Open-source contributions:
  - See https://github.com/senya-ashukha
  - Extremely simple implementations of ML algorithms that I made just for fun:
    - Density estimation using Real NVP, https://github.com/senya-ashukha/real-nvp-pytorch
    - Quantile Regression DQN, https://github.com/senya-ashukha/quantile-regression-dqn-pytorch
    - Gradient boosting, https://github.com/senya-ashukha/simple-boosting

- Languages and Keywords: I'm fluent with Python which is my love, I use to code on C, Go, language is not a problem after all. I'm also fluent with common python libs such as NumPy, Matplotlib, scikit-learn, etc. My primary deep learning framework at the moment is PyTorch which is my absolute love, prior to that I had a decent experience with Theano+Lagange and some experience with TensorFlow.

- Yandex School of Data Analysis: During my MSc degree, I learned many fundamentals of machine learning and algorithms at Yandex School of Data Analysis e.g., Machine Learning, Bayesian Machine Learning, Optimization in Machine Learning, Deep Learning, and Graphical Models.